BEFORE THE PUBLIC UTILITIES COMMISSION

OF THE STATE OF HAWAII

---------In the Matter of--------	)	DOCKET NO. 2008-0273
	)	
PUBLIC UTILITIES COMMISSION	)	
	)	
Instituting a Proceeding to Investigate the Implementation of Feed-in Tariffs.	)	
	)	

THE DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT, AND TOURISM'S RESPONSES TO THRESHOLD NON-LEGAL ISSUES (QUESTIONS 4 - 29) SET FORTH IN APPENDIX C, AND COST DATA FORMS SET FORTH IN APPENDIX A TO THE NATIONAL REGULATORY RESEARCH INSTITUTE'S (NRRI) SCOPING PAPER ENTITLED "FEED-IN TARIFFS: BEST DESIGN FOCUSING HAWAII'S INVESTIGATION"

AND

CERTIFICATE OF SERVICE

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THE DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT, AND TOURISM'S RESPONSES TO CERTAIN THRESHOLD NON-LEGAL ISSUES (QUESTIONS 4 - 29) SET FORTH IN APPENDIX C, AND COST DATA FORMS SET FORTH IN APPENDIX A TO THE NATIONAL REGULATORY RESEARCH INSTITUTE'S SCOPING PAPER ENTITLED "FEED-IN TARIFFS: BEST DESIGN FOCUSING HAWAII'S INVESTIGATION"

The Department of Business, Economic Development, and Tourism ("Department" or "DBEDT"), by and through its Director ("Director") in his capacity as the Energy Resources Coordinator, and through the undersigned Deputy Attorney General, hereby submits to the Hawaii Public Utilities Commission ("Commission"): as Part I herein, its responses to the threshold non-legal issues identified in Appendix C of the Commission's scoping paper titled "Feed-in Tariffs: Best Design Focusing Hawaii's Investigation" issued on December 11, 2008 ("Scoping Paper"); and as Part II herein, its Summary Table of Cost Data for the PBFIT Supporting Cost Information requested in Appendix A of the Scoping Paper.

Part I: Responses to the threshold non-legal issues identified in Appendix C, Questions 4 - 29

4. Feed-in tariffs, if approved by the Commission, would join an array of legislative and regulatory initiatives to boost production of renewables in Hawaii. Those initiatives include PURPA, the renewable portfolio standard, net metering and various distributed generation actions. Are there overlaps, redundancies, gaps among these multiple initiatives? What is the independent purpose of each of these, in relation to the others?

DBEDT Response:

4. The overlap between feed-in tariffs, the Public Utility Regulatory Policies Act (PURPA), renewable portfolio standards (RPS), and net energy metering (NEM), is found in their common goal of promoting the use and development of renewable energy resources. These initiatives provide and offer different incentive mechanisms to different players in the market to promote renewable energy resources development.

Feed-in tariffs provide standardized, published purchase power rates that the utilities will pay for purchases of energy generated from renewable resources. As indicated by DBEDT's response to legal question 3.c filed with the Commission on January 12, 2009, the incentive features of feed-in tariffs include the provision of long-term certainty and stability of renewable resources' prices that the utilities will pay; a standardized process and

procedure for the utilities' procurement of power from renewable resources, with the resulting elimination of long and potentially costly contract negotiation with uncertain outcomes; and an equitable opportunity to all willing participants in the market.

PURPA is a federal law passed in 1978 as part of the National Energy Act of 1978, which was a legislative response by the United States Congress to the 1973 oil crisis. Although a federal law, the implementation of PURPA's mandates was left to the states' regulatory authority.

The aim of PURPA is to promote greater use of renewable energy, and the law created a market for non-utility electric power producers by mandating that electric utilities purchase power from these producers at the "avoided cost" rates, representing the cost the electric utility would incur were it to generate or purchase from another source. PURPA encouraged mainly cogeneration facilities and small power production facilities. Under PURPA, "cogeneration facility" means a facility which produces electric energy and steam or forms of useful energy (such as heat) which are used for industrial, commercial, heating, or cooking purposes. The law encouraged cogeneration facilities on the basis that they

harness the thermal energy (in the form of usable heat) that would otherwise be wasted if electricity alone is produced.

PURPA defines a "small power production facility" as "a facility which is an eligible solar, wind, waste, or geothermal facility, or a facility which (i) produces electric energy solely by the use, as a primary energy source, of biomass, waste, renewable resources, geothermal resources, or any combination thereof; and (ii) has a power production capacity which, together with any other facilities located at the same site (as determined by the Commission) is not greater than 80 megawatts." (See 16 USC Chapter 12, Title 16, Subchapter I, Sec. 796(17) and Sec. 796(18)).

The incentives provided by PURPA for qualifying cogeneration and small power production facilities include exemptions from state and federal regulatory regimes, including "exemptions in whole or part from the Federal Power Act [16 U.S.C. 791a et seq.], from the Public Utility Holding Company Act, from State laws and regulations respecting the rates, or respecting the financial or organizational regulation, of electric utilities, or combination of the foregoing.." as determined by the Commission as necessary to encourage cogeneration and small

power production. *See* 16 USC Chapter 12, Title 16, Subchapter II, Sec 824a-3(e)

Hawaii's Net Energy Metering (NEM) law passed in 2001 and was aimed at encouraging and promoting renewable energy-based customer-sited generation units to offset part or all of the customers' electricity usage. The eligible customer-generator included solar, wind turbine, biomass, hydroelectric energy generating facilities, or hybrid systems consisting of two or more of these facilities. The law was first limited to eligible customer-generators with a capacity of not more than 50 kilowatts, and with a total customer-generator capacity not exceeding .5 percent of the utility's system peak demand. The NEM incentive to promote renewable energy customer-sited systems is in the form of the retail rates applied to the net energy produced by the eligible-customer generator in excess of the customer's energy consumption and fed to the utility grid.

The RPS sets the goals of how much of Hawaii's electricity kilowatthour consumption shall be met or supplied by renewable energy-based generation beginning in 2010 and on in 5-year increments. It mandates the minimum amount of renewable energy-based electric generation to be included in the utilities' generation portfolio to meet electricity load.

PURPA, NEM, feed-in tariffs, and all the various other distributed generation initiatives provide the incentive mechanisms to encourage and promote the use and development of renewable energy resources that will help achieve the RPS. Rather than being redundant, each initiative complements the others to serve the ultimate policy goal.

5. Please explain the criticality of completing the "best-design" phase of this investigation by March 2009 and having project-based FiTs in place by July 2009 as called for in the Agreement.

DBEDT Response:

5. Hawaii's heavy dependence on imported fossil fuel continues to imperil Hawaii's economy and energy security. In January 2008, the State, in partnership with the U.S. Department of Energy (USDOE), launched the Hawaii Clean Energy Initiative (HCEI) with the goal of transforming Hawaii's energy sector from 90% dependency on fossil-fuel to supplying 70% of Hawaii's energy demand with clean, indigenous, renewable energy by 2030. The completion of the "best design" phase in March 2009 and the target implementation date of July 2009 are critical steps in achieving HECO's commitments under the Agreement, ensuring the achievement of the HCEI goals, for the following reasons:

a. Feed-in tariffs are an important mechanism in promoting renewable energy resources which in turn is critical to achieving the increased RPS goals beginning in 2015. To a great extent, the proposed increase in Hawaii's RPS effectively provides the "time-path" in achieving the HCEI goal. Feed-in tariffs are expected to reduce the time it takes for the utilities to procure renewable energy resources.

b. The development and permitting of renewable resources normally require long lead times, and adoption and implementation of feed-in tariffs by mid-2009 will enable and encourage the development of renewable energy projects as quickly as possible, allowing consumers to reap the benefits of Hawaii's energy transformation sooner, including the reduction of dollars exported from Hawaii's economy due to reduction in oil imports and its attendant multiplier effect.

c. The HCEI activities have started to focus on implementation studies that would allow the integration of increased renewable resources in the system grids, including the development of the undersea cable to interconnect Oahu with the County of Maui. The feed-in tariffs' facilitation of the

development of renewable energy projects will help ensure that these renewable resources are available when the grid requirements and enhancements are implemented and developed.

6. Please explain why project-based FiTs are superior to other methods that require a utility to purchase renewable electricity.

DBEDT Response:

6. As defined in the Commission's scoping paper, "project-based feed-in tariffs base the price on the typical cost of developing a specific type of a resource (e.g., large offshore wind) plus a reasonable profit." The Energy Agreement between the State and the HECO companies allows the use of the developer's cost plus a reasonable profit as the basis for developing feed-in tariffs. The parties to the Agreement believe that such guidance in setting the feed-in tariffs rates in Hawaii's case will allow the utility ratepayers to share in the benefits of the increased use and development of renewable energy resources in Hawaii, since the parties expect that the resulting feed-in tariffs could be lower than the total costs of the utility's fossil-based generation. Renewable energy in Hawaii, unlike the mainland, is cost competitive with and often cheaper than non-renewable energy. Hawaii's

electricity generation is the most fossil-fuel dependent in the nation and consequently Hawaii has the highest electricity rates in the country. "Best design" project-based FiTs will incentivize and benefit all the market players - the suppliers, the consumers, and the utility. The parties to the Agreement are of course cognizant of the fact that such guidance in setting the feed-in tariffs is subject to Commission approval.

7. Please quantify the costs over avoided costs of an open-ended PBFiT program assuming the utility meets the RPS goals set forth in the Agreement.

DBEDT Response:

7. DBEDT does not have the necessary information (i.e., avoided costs) to respond to this issue. The costs of a PBFiT program will depend on the PBFiT rates approved by the Commission. Similarly, the avoided costs will depend on what the Commission determines and approves to be included in such avoided costs and how those elements are determined during the term of the PBFiTs.

8. Please quantify the benefits of lowering oil imports, increasing energy security, and increasing both jobs and tax base for the state mentioned in the Agreement.

DBEDT Response:

8. DBEDT does not have all the information (i.e., total costs of all the commitments included in the Agreement)

necessary to quantify the net benefits for the State mentioned in the Agreement. DBEDT's preliminary estimate of the benefits of increasing and achieving an RPS goal of 40% by 2030, as agreed to by the parties in the Agreement, includes the reduction of Hawaii's oil imports by approximately 3,166,400 barrels a year, which represents a cost of approximately $237,481,000 a year, assuming an oil price of $75 per barrel. The job, income, and state tax revenue impacts of this reduction in oil imports depend on how much of this total remains in Hawaii. For simplicity, assuming that the dollar savings represented by the total reduction in oil imports remain in Hawaii, the electricity rates are reduced by an equal amount, and the consumers use the savings from the rate decreases to purchase other consumer goods and services, the resulting boost in personal consumption expenditure will increase jobs by approximately 2,800 a year, increase annual earnings by $94,992,400, and increase annual state tax revenues by $18,761,000. Decreasing Hawaii's dependence on imported fossil fuel will effectively increase energy security, as Hawaii becomes less vulnerable to the volatility of fossil oil market.

9. Is the goal to encourage as much use of renewable resources as possible as soon as possible, or is it to encourage the orderly introduction of renewable resources based upon cost effectiveness?

DBEDT Response:

9. DBEDT believes that the goal is to encourage as much use as possible of cost effective renewable resources as soon as possible.

10. How long a period should exist between mandatory Commission reviews of the PBFiTs?

DBEDT Response:

10. DBEDT believes that it is reasonable for the Commission to review the performance and effectiveness of the PBFiTs every year for the initial 5 years of PBFiTs implementation, and every 2-3 years thereafter, unless there are major developments in the market that could affect the FiTs rates and/or terms and conditions that would necessitate Commission review immediately.

11. Do each of the technologies listed as a renewable resource in the RPS legislation require a PBFiT?

DBEDT Response:

11. There are of course no Hawaii statutes that currently require a PBFiT for each or any of the technologies listed in the RPS legislation. The adoption and implementation of FiTs were first recommended in the Hawaii Clean Energy

Initiative (HCEI), which is a partnership between the State of Hawaii and the U.S. Department of Energy. Many HCEI stakeholders, including the parties to the Agreement, believe that FiTs will help promote the increased use and development of renewable energy resources in Hawaii. DBEDT believes that it is reasonable to initially adopt and implement FiTs for those renewable resources and technologies that are relatively mature, technologically-proven, and commercially available, such as wind and solar energy technologies.

12. Should PBFiTs for certain technologies be established now while others are deferred?

DBEDT Response:

12. Yes, as suggested in our response to issue #11 above.

13. Should the Commission cap purchases under PBFiTs? If yes, what is the maximum amount? Should individual caps be set for each technology? What period should the cap cover? What is the measurement for the cap (e.g., dollars, percent of sales, kW, or kWh)?

DBEDT Response:

13. DBEDT believes that it is reasonable for the initial FiTs design adopted and approved by the Commission to specify the total target amount of renewable resource that the utility will procure through the FiTs, and that target can be incrementally adjusted over the FiTs term. Such target

amount may be based on kWh and/or kW. The determination of the target amount should take into consideration such factors as the role of the competitive bidding framework in the utility's resource future procurement as determined by the Commission, load growth forecast, and achievement of the RPS goals.

14. What limitations exist for integrating renewable resources onto the grid? Should these limits affect the PBFiT design or caps, or are they just another cost that developers must consider?

DBEDT Response:

14. Certain characteristics of some renewable resources, such as the intermittent nature of wind and solar energy, affect the grid's stability, which in turn impacts the ability to integrate such resources into the system. Such characteristics should be taken into consideration in the design of FiTs in the determination of both the cap and the rates, as well as the tariffs' terms and conditions.

15. How long should the Commission set for the PBFiT's term of obligation? Should it be different for different technologies? Is there a common basis (e.g., a conservative estimate of expected useful life) for establishing the term of obligation? On what basis should a utility pay for electricity after the term expires?

DBEDT Response:

15. The PBFiTs term may be based on the expected life of the renewable resource technology, or up to 20 to 25 years,

whichever is shorter. DBEDT has no current opinion on whether the term should or should not be different for different technologies for the initial feed-in tariffs adopted and approved by the Commission. DBEDT does not believe that the basis of the utility's purchase power rates after the FiTs term expires needs to be determined now, as the FiTs term may last 20 years or more and it is difficult to predict the energy market conditions that far out into the future.

16. Should PBFiTs require the utility to purchase the project's gross or net output at the PBFiT price?

DBEDT Response:

16. DBEDT believes that the effective payment rates (i.e., what the utility actually pays) should be calculated on the total actual output delivered and metered at the point of interconnection in the utility system grid.

17. How should the utility determine the price paid for renewable energy not covered by a PBFiT (e.g., purchases above the cap or beyond the term of obligation)?

DBEDT Response:

17. Ideally, PBFits should apply to as much renewable energy that the utilities procure as possible, in order to facilitate, promote, and encourage the use and development of renewable energy. The price paid for renewable energy

not covered by a PBFiT (e.g., purchases above the cap) may be based on negotiated rates between the utility and the renewable energy developer through a purchase power contract and/or through the competitive bidding process, taking into consideration such factors as the provisions of section 269-27.2, Hawaii Revised Statutes, the status of the achievement of the HCEI and RPS goals, load growth, current energy market conditions, and ancillary services offered by the developer or required by the utility to accept or integrate the renewable energy into the system.

18. What inflation adjustment, if any, should the PBFiT include, using what base and indexes?

DBEDT Response:

18. The need to include inflation adjustment will depend on how the FiTs rates are determined. Some cost items used in the FiTs design may include adjustment mechanisms based on such indices as the Honolulu Consumer Price Index (Hon-CPI) and/or the Producers Price Index (PPI) or any other indices applicable to Hawaii.

19. What milestones (e.g., commercial operations) should the Commission set to determine eligibility for the PBFiT? Are Hawaii RPS statute requirements an eligibility requirement? Should utility affiliates be eligible to receive the PBFiT price?

DBEDT Response:

19. The Commission may set project milestones for eligibility for the PBFiT on the completion of some permitting requirements and/or production start date.

DBEDT believes that since the utilities will be implementing the procurement of renewable energy under the FiTs, it is not appropriate for utility affiliates to receive the PBFiTs rates.

20. Please comment on the need for stepped tariffs based upon location, size, fuel mix, and output.

DBEDT Response:

20. Resource location, size, and output characteristics (i.e., as-available versus firm power) may affect not only the developer's costs but also the utility's costs and requirements of accepting and integrating the resources into the system; however, it is not practical nor reasonable to have different FiTs rates for each resource size, each location, and each output characteristic. As in any rate design, the FiTs design should take into account simplicity and ease of administration.

21. Under what circumstances should the PBFiT price be time-differentiated?

DBEDT Response:

21. DBEDT believes that the initial PBFiTs adopted by the Commission should not be time-differentiated as there is not enough data or evidence to support the proposition that the costs of electricity generation from renewable energy resources vary by time-of-day. For instance, the running costs or fuel costs of wind and solar energy is zero regardless of time of day.

22. How highly leveraged (i.e., bearing how much debt compared to equity) are these projects?

DBEDT Response:

22. DBEDT has no comment on this issue at this time.

23. Does a PBFiT create a financing environment through a reliable revenue stream from the ratepayer to the investor, allowing for greater leverage and thus lower cost financing than would be available under an avoided-cost tariff?

DBEDT Response:

23. A PBFiT provides some degree of stability and certainty to the investors' revenue stream. That stability and certainty could lower the investor's financing costs, a circumstance not available under an avoided cost-based tariff.

24. If the PBFiTs are to encourage early development of resources, does the reasonable return need to be set higher for these early tariffs? Are there reasons other than encouraging early development to set the profit margin higher, such as risks associated with early implementation? Is this true across all project classes?

DBEDT Response:

24. The determination of the "reasonable return" should take into consideration, among other things, the risks associated with early development and implementation.

25. Does the current "credit crunch" affect the financing costs, including expected profits by equity investors?

DBEDT Response:

25. Yes. The current economic environment, including the "credit crunch", could affect the financing costs and return on the investors' equity in the short-run.

26. Please provide a quantitative analysis demonstrating the public interest aspect of the concept that 10% of the utility's purchases under the feed-in tariff PPA should be included in the utility's rate base through 2015. In addition to the overall prudence of the rate base recommendation, please address the 10% and 2015 date included in the Agreement.

DBEDT Response:

26. DBEDT does not currently have the information to develop a quantitative analysis respecting the public interest aspect of the concept of the 10% "ratebasing" of the utility purchases under FiTs. To the extent that Hawaii's energy transformation is achieved through the incentives

provided by different mechanisms such as FiTs, the reduction in Hawaii's oil imports and its attendant multiplier effect, as provided in DBEDT's response to issue #8 above, will significantly serve the public interest. Hawaii is heavily dependent on imported fossil-fuel for over 90% of its energy needs, making its economy highly vulnerable to the volatility of fuel prices in the global market. Promoting the increased use and development of renewable energy resources is a critical element in achieving Hawaii's goal of energy security and independence. The utilities play a major role in effecting this transformation to renewable energy, and the parties to the Agreement recognize the need for changes in Hawaii's regulatory and ratemaking framework that would encourage the utilities to help effect this transformation.

Utility power purchases from third parties displace the need for utility investments on generation plants which make up a substantial portion of the utility's rate base. Purchased power is a utility expense that is simply passed through to the ratepayers, and effectively reduces the utility's capital-base on which to earn a fair return. The parties to the Agreement accepted in principle that allowing the utility to ratebase 10% of the power purchases under the FiTs for a limited time would provide shareholder

incentives to purchase and integrate as much renewable energy to the system as possible. Public interest is better served the sooner the State achieves energy independence with its attendant consequences of economic security, diversification, and environmental benefits. It should be noted however that this utility incentive supported in principle by the parties to the Agreement, as well as all the utility-related matters included in the Agreement, are subject to Commission approval.

27. What is the appropriate rate of return for the PBFiT portion of rate base that consists of a mandated purchase with guaranteed recovery and no capital outlay?

DBEDT Response:

27. DBEDT defers to the Commission as to the appropriate rate of return for the PBFiT portion of the rate base, which could be set at or below the utility's allowed rate of return on rate base approved by the Commission in the utility's last rate case. It should be noted that allowing a portion of the power purchases under PBFiTs to be ratebased does not necessarily guarantee recovery. Utilities are allowed to earn a fair return on their rate base, but are not guaranteed to earn it.

28. Are there preferable utility incentives, other than putting PBFiT revenues into the rate base, to encourage the development of renewable resources?

DBEDT Response:

28. Yes, there are utility incentives preferable to ratebasing a portion of the utility's purchase power. The Agreement includes some of them, such as a decoupling mechanism, allowing timely recovery of utility costs and investments relating to clean renewable energy through the clean energy surcharge, and even recovering the demand or capital cost component of its purchased power costs in a surcharge similar to the current automatic energy cost adjustment. All of these incentives are supported in the Agreement and are subject to Commission evaluation and approval.

Equally important to note is the fact that the Agreement also includes a utility commitment to pursue and integrate as much as 1,612.4 MW of renewable energy resource-based generation by 2030, and a commitment to support the achievement of a 40% RPS goal and 30% energy efficiency by 2030. These utility commitments provide a definitive pathway to help achieve the HCEI goal of meeting 70% of clean, indigenous, renewable energy by 2030.

29. Should the PBFiT require developers to assign credits (e.g., investment tax credits, renewable energy credits, and carbon credits) earned from a project to the purchasing utility as a condition of receiving payments under the

pBFiT? If not, how should these credits be included in the estimation of a typical project's cost?

DBEDT Response:

29. DBEDT does not have an opinion on this issue at this time. As provided in the Agreement, the parties agreed that green attributes should be separated from renewable energy pricing, and the pricing benefits and price stability provided by green pricing should be shared by all ratepayers. The treatment of green attributes (RECs) needs further evaluation, and the parties to the Agreement wish to help the Commission in this effort.

In summary, DBEDT believes that the non-legal threshold issues identified in the Commission's scoping paper should be carefully examined and addressed in the design of the feed-in tariffs. DBEDT however also believes that aiming for the "perfect" feed-in tariff design may be impossible to accomplish the first time around. Instead, the instant docket should aim at adopting the best designed feed-in tariffs given the current information available, and allow for periodic evaluation and review by the Commission and the relevant parties as Hawaii gains experience in purchases of renewable energy under the initial feed-in tariffs resulting from this proceeding.

Part II: Summary Table of Cost Data for the PBFIT Supporting Cost Information requested in Appendix A of the Scoping Paper

The Summary Table of Costs Data below sets forth the data that DBEDT was able to compile from various sources as noted in the footnotes to the table. Please note that these costs reflect national averages, and most of the data do not provide what costs are included or how they are determined.

Summary Table of Cost Data:

Project Definition	Capital Cost ($/kW)	Expected Life (Years)	Annual Output per kW (kWh)[1]	Fixed Operating Costs ($/year)	Variable Operating Costs (¢/kWh)	Profit (%)	Reference
Wind[4]	$1,707 (2006 $/kW)	-----	45.0%	$29.48 (2006 $/kW-yr)	-----	-----	U.S. EPA Office of Air and Radiation and DOE Annual report on wind power trends: 2007
Solar PV – Large[1]	$6230 ($/kW)	20	18%	$15.80 ($/kW-yr)	-----	-----	MYPP 2008-2012
Solar PV-Small[2]	$8,500 ($/kW)	20	18%	-----	-----	-----	Solar Buzz
Solar PV: 100 kW and small[3]	$7.85 ($/kW)	25	18%	-----	0.0	-----	REC Solar, Hawaii
Solar PV: 101 kW – 300 kW[3]	$7.35 ($/kW)	25	18%	-----	0.0	-----	REC Solar, Hawaii
Solar PV 300 kW – 500 kW[3]	$6.35 ($/kW)	25	18%	-----	0.0	-----	REC Solar, Hawaii
Landfill Gas (High)[5]	$1,799 (2006$/ kW)	-----	-----	$111 (2006 $/kW-yr)	0.01 (mills/ kWh)	-----	U.S. EPA Office of Air and Radiation,
Landfill Gas (Low)[5]	$2,266 (2006$/ kW)	-----	-----	$111 (2006 $/kW-yr)	0.01 (mills/ kWh)	-----	U.S. EPA Office of Air and Radiation

Geothermal (binary)[6]	$4,000 ($/kW)	------	90%	-----	-----	-----	Gigawatt Scale renewable & EERE Geothermal FAQs page
Geothermal (flash)[6]	$2800 ($/kW)	20	90%	$20 ($/kW-yr)	-----	-----	Geothermal Energy Association
Biomass[7] (Conventional Direct Fired Boiler)	$3,000 (2006$/ kW)	----	----	$83.0 (2006$/ kW-yr)	11.3 (mills/ kWh)	-----	U.S. EPA Office of Air and Radiation

[1]Based on 2008 dollars. Explanation on the stated cost is not available. Cost from SENTECH, Reference: MRPP 2008-2012, pg. 23, http://www1.eere.energy.gov/solar/pdfs/solar_program_mypp_2008-2012.pdf
The estimated capacity factor of 18% is from National Renewable Energy Laboratory, "Solar Radiation Data Manual for Flat-Plats and Concentration." See http://rredc.nrel/solar/pubs/redbook/

[2] Based on 2007 dollars. Explanation on the stated cost is not available. Cost from SENTECH, Reference: Gigawatt Scale Renewables power point, pg. 6, Department of Energy.

[3] Current PV estimate from REC Solar, Inc., Hawaii. The costs are based on an average of different roof technologies, including standing steam metal roof, flat membrane, composite shingle, ground mounted fix tilt system, and single axis tracker. The stated capital cost includes design, hardware procurement, installation, permitting, utility interconnection agreement, and 10 year warranty.

[4] Based on 2006 dollars. Explanation on the stated cost is not available. Reference: Wind and Other Renewable Assumptions in EPA's Base Case, Power Point dated October 8, 2008, U.S. EPA Office of Air and Radiation, www.nationalwind.org The capacity factor of 45% is based on Hawaii Capacity Weighted average for 2007 as reported in the U.S. DOE annual report on U.S. Wind Power Installation, Cost, and Performance Trends, 2007.

[5] Based on 2006 dollars. Explanation on the stated cost is not available. Reference: Wind and Other Renewable Assumptions in EPA's Base Case, Power Point dated October 8, 2008, U.S. EPA Office of Air and Radiation, www.nationalwind.org.

[6] Geothermal Binary based on 2006 dollars. Explanation on the stated cost is not available. Cost from SENTECH, Source: Gigawatt Scale Renewables power point, pg. 4, Department of Energy. Geothermal Flash is based on 2008 dollars. Cost from SENTECH, Reference:
Geothermal Energy Association http://www.geoenergy.org/aboutGE/powerPlantCost.asp

[7] Biomass (Conventional Direct Fixed Boiler) based on 2006 dollars. Explanation on the stated cost is not available. Source: Wind and Other Renewable Assumptions in EPA's Base Case, Power Point dated October 8, 2008, U.S. EPA Office of Air and Radiation, www.nationalwind.org.

DATED: Honolulu, Hawaii, January 26, 2009.

GREGG J. KINKLEY
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Certificate of Service

I hereby certify that I have served a copy of the response to the Threshold Legal Questions in Appendix C of the Commission's scoping paper titled "Feed-in Tariffs: Best Design Focusing Hawaii's Investigation" and Cost Data Forms Set Forth In Appendix A, by the Department of Business, Economic Development, and Tourism in Commission Docket Number 2008-0273, by electronic transmission on the date of signature to each of the parties listed below.

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